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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,652	07/07/2003	George Cintra	08935-216002	7512

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EXAMINER
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BAREFORD, KATHERINE A

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/614,652	Applicant(s) CINTRA ET AL.	
	Examiner Katherine A. Bareford	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-19, 21, 51-57 and 59-65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

*claims 1-15, 20, 22-50 and 58 are canceled*

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

*10*

### DETAILED ACTION

1. The response and terminal disclaimer of August 4, 2005 have been received and entered.
2. The indication of allowable subject matter in the Office Action of June 21, 2005 is withdrawn in view of the newly discovered reference(s) to Japan 55-088266. Rejections based on the newly cited reference(s) follow.

#### *Terminal Disclaimer*

3. The terminal disclaimer filed on August 4, 2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent 6,589,612 has been reviewed and is accepted. The terminal disclaimer has been recorded.

#### *Double Patenting*

4. The rejection of claims 16-18, 51-57, and 59-63 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 5-6, 8-10 and 14-18 of U.S. Patent No. 6,589,612 ('612) is withdrawn due to the filing of an acceptable terminal disclaimer on August 4, 2005, as discussed above.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 16, 21, 52, 53, <sup>55-57</sup>~~55-57~~ and <sup>59-64</sup>~~60-64~~ is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 55-088266 (hereinafter '266) in view of Reichert et al (US 6203941) and Sono-Tek Technology Overview.

'266 teaches a method of preparing a non-aqueous electrolyte cell battery. See the abstract. A cathode can is provided. Abstract. An electrolyte solution is provided.

Abstract. The electrolyte is sprayed on the cathode to impregnate the cathode with the electrolyte. Abstract.

Claim 57: the surface can be the cathode.

'266 teaches all the features of these claims except (1) the features of the battery container (claims 16, 59-62), (2) the vibratory nebulizer for spraying (claims 16, 52), (3) the separator (claims 19,65), (4) the spraying features (claim 21, 63, 64), (5) the film forming material (claims 53, 55, 56).

However, Reichert teaches a method for applying a material (a separator) in the manufacture of a battery. Column 2, line 45 through column 3, line 20. The material can be applied as a spray. Column 4, lines 15-25. The material can be a film forming separator material. Column 4, lines 20-40. A cathode can be provided. Column 3, lines 1-5 and column 4, lines 15-25. The film forming material is applied to at least a portion of the cathode. Column 3, lines 1-5 and column 4, lines 15-25. The cathode is placed in a battery can prior to applying the film forming material. Column 3, lines 1-5 and column 4, lines 15-25. The spray can be provided by inverted can spray coating, wherein the coating composition is sprayed vertically upwardly into an inverted battery containing a cathode. Column 3, lines 1-5. The system can have at least two components. Column 6, lines 45-60 (for example) and also column 7, lines 5-20. These components can be applied simultaneously as a spray. Column 4, lines 15-25. The surface can be an elongated cavity in the container. Figures 1-3 and column 3, lines 20-30. The surface can be cylindrical. Column 2, lines 50-55 and figures 1-3. The surface can also be non-

cylindrical. Column 2, lines 50-60. The separator can include a cellulose material.

Column 6, lines 1-25.

Sono-Tek teaches a desirable ultrasonic atomizing nozzle (a vibratory nebulizer) that provides for a desirable low velocity spray of 3-5 inches/second. Page 1. This allows for a reduced amount of overspray and a precisely controlled and shaped spray. Page 1. Sono-Tek teaches that it is used to spray liquid materials. Page 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '266 in order to provide that the cathode<sup>is</sup> placed in the battery can as shown by Reichert prior to spraying in order to provide a desirable application of electrolyte, because '266 indicates spraying of an electrolyte for battery purposes on a cathode in a can, and Reichert indicates a desirable placement for a cathode in a can prior to application of electrolyte. As shown by Reichert, the substrate cathode can be an elongated cavity in a container, in a cylindrical or non-cylindrical shape, which would be inclusive of an undulating lobe shape, as all shapes would be encompassed. It would further have been obvious to modify '266 in view of Reichert to provide a vibratory nebulizer spray as suggested by Sono-Tek to provide a controlled and shaped spray to impregnate the cathode, because '266 in view of Reichert teaches spraying a cathode with electrolyte liquid and Sono-Tek teaches a desirably controlled method of spraying using a vibratory nebulizer, which would provided a spray velocity of 3-5 inches/second. It would further have been obvious to modify '266 in view of Reichert and Sono-Tek to also spray so as to prevent pooling and to rotate the battery

and move the nebulizer up and down the length of the battery, given the teaching by Reichert that it is desired to fully and evenly coat all surfaces. It would further have been obvious to modify '266 in view of Reichert and Sono-Tek to also further use the film forming material, given the teaching of the desire to also provide a separator by spraying as taught by Reicher.

8. Claims 19 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over '266 in view of Reichert and Sono-Tek as applied to claims 16, 21, 52, 53, <sup>55-57</sup> ~~55, 57~~ and <sup>59</sup> ~~69~~ 64 above, and further in view of the admitted state of the prior art.

'266 in view of Reichert and Sono-Tek teach all the features of these claims except for the application on the separator.

However, the admitted state of the prior art, at page 1 of the specification, teaches that in the manufacture of batteries it is common to start with a cylindrical can to which is first added a palletized cathode material in the shape of an annulus. A separator is then placed against the surface of the cathode inside the annulus. The separator is made by a preformed cylindrical sheet or may be a material that is applied as a liquid and then forms a stable film. A small precharge of electrolyte is then added to wet the separator. The precharge is poured in the annular opening defined by the separator and forms a small pool at the bottom of the can from which it wicks into the separator after a period of time.

It would further have been obvious to one of ordinary skill in the art at the time the invention was made to modify '266 in view of Reichert and Sono-Tek to also provide spraying electrolyte on the separator as suggested by the admitted state of the prior art, in order to provide a desirable battery, because as shown by Reichert it is common to provide the further spray<sup>of</sup> a separator on top of the cathode, and as shown by the admitted state of the prior art, after the application of the separator is when the electrolyte is commonly added.

9. Claims <sup>17</sup>~~7~~-18 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over '266 in view of Reichert and Sono-Tek as applied to claims 16, 21, 52, 53, <sup>55-57</sup>~~55-57~~ and <sup>59</sup>~~69~~-64 above, and further in view of Hope et al (US 4888206).

'266 in view of Reichert and Sono-Tek teach all the features of these claims except the droplet size.

However, Hope teaches the spraying of a material from a vibratory nebulizer. Column 5, lines 45-68 and column 2, lines 15-25. The droplet size can be less than 20 microns. Column 6, lines 5-15.

It would further have been obvious to one of ordinary skill in the art at the time the invention was made to modify '266 in view of Reichert and Sono-Tek to also provide the droplet size of less than 20 microns as suggested by Hope, in order to provide a desirable battery, because as shown by Sono-Tek it is desirable to use a vibratory



nebulizer, and as shown by Hope a droplet size of less than 20 microns is common when using such a nebulizer.

10. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over '266 in view of Reichert, Sono-Tek and the admitted state of the prior art as applied to claims 19 and 65 above, and further in view of EP 898 316 A1 (hereinafter '316).

Reichert, Sono-Tek and the admitted state of the prior art teach all the features of these claims except the use of PVA.

However, '316 teaches the formation of separators for batteries. Page 4, lines 50-55. The separator comprises a porous base, such as a porous film, and an

organometallic compound applied to the base. Page 4, <sup>lines</sup>~~lines~~ 50-55. The porous film can include PVA, polyvinyl alcohol. Page 6, lines 35-45. The PVA can be applied by spray coating or the like to the porous base. Page 9, <sup>lines</sup>~~lines~~ 35-55. Sequentially the organometallic compound can be applied by spraying to form the separator. Page 11, lines 40-45.

It would further have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reichert, Sono-Tek and the admitted state of the prior art to also use PVA as a separator component as suggested by '316, in order to provide a desirable battery, because as shown by '316 it is desirable PVA in separators.

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*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
KATHERINE BAREFORD  
PRIMARY EXAMINER